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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,163	12/18/2001	Cornelis Leonardus Gerardus Ham	NL000746	4649

7590

03/27/2003

U.S. Philips Corporation
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EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,163

Applicant(s)

HAM ET AL.

Examiner

Brij B Shrivastav

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Objections

1. On page 4 of the specification in figure description section, description of figures 12 and 13 is missing. Appropriate corrections are required without adding new matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Morad (US 5,084,085).

As regards to claim 1, Morad teaches a magnetic resonance imaging apparatus comprising a gradient coil assembly for generating gradient magnetic fields in an imaging volume (column 1, lines 5-19). Morad also teaches the gradient coil assembly comprising at least three gradient coils for generating three different gradient magnetic fields (column 1, lines 20-28). Further, Moran teaches a conductive element (figure 1, numeral 13) in close proximity to at least one of the gradient coils (figure 1, numerals 12, 14; column 2, lines 24-44) in order to compensate self-induced eddy currents in the gradient coil assembly (column 1, lines 52-58)

Claims 2 and 3 are further rejected as Moran teaches presence of a conductive element in side at least one gradient coil (figure 1, numeral 14, gradient coil, and numeral 13, a conductive element). Moran also teaches a conductive element, which is

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provided between the inner gradient coil and the outer gradient coils (figure 1, numerals 12-14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 4-6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morad (US 5,083,085), and further in view of Doty (WO 94/01785).

As regards to claims 4-6, Morad further does not teach conductive elements comprising: a) an active or passive coil loop, b) the coil loop is connected to a separate loop amplifier, and c) the loop is electrically shorted. Doty teaches active and passive coil loops, which are connected to separate amplifiers, and they are also short circuited (figures 2, 6, 8, numerals 308, 801; 603; 808, 809). It would have been obvious to one of ordinary skill in the art to combine gradient coil limitations of Doty with the invention of Morad to achieve a gradient coil assembly producing reduced eddy currents to improve image quality.

As regards to claim 10, Morad further does not teach a gradient coil assembly with conductive elements to suppress high order behavior of the gradient coil(s). Doty teaches conductive element(s) placed near the gradient coils to suppress their high order behavior (pages 33, first paragraph and page 35). It would have been obvious to one of ordinary skill in the art to combine gradient coil limitations of Doty with the

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invention of Morad to achieve a gradient coil system to avoid eddy currents responsible for image blurring artifacts.

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morad (US 5,083,085), and further in view of Mulder et al (WO 00/25146).

As regards to claim 8 and 9, Morad further does not teach conductive element as a conductive pad/plate or a conductive slit. Moulder et al teach conductive element as a conductive pad/plate/slit. It would have been obvious to one of ordinary skill in the art to use conductive plate of Moulder et al as the conductive element with the gradient coils of Morad to avoid eddy currents to improve image quality.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morad US 5,083,085).

As regards to claim 7, Morad further does not teach conductive element loop being driven by a signal taken from the gradient coil while using it as a transformer. However, such a pickup-loop is very common in many arts. It would have been obvious to one of ordinary skill in the art to use transformer type pickup-loop connected to the conductive elements of Morad to have an inexpensive and simple arrangement for gradient coil shielding to improve imaging quality.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Punchard et al (US 4,733,189) and Petropoulos et al (US 6,278,275) disclosing shielded gradient coil systems

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

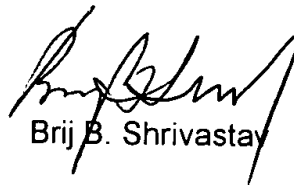
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 703-305-0649. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 703-305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-304-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0956.

Bbs

March 18, 2003


Brij B. Shrivastav
Patent Examiner